KADAR *CALCIUM* ENAMEL GIGI PERMANEN MUDA SETELAH APLIKASI *Sodium fluoride* 5% + *TRI-CALCIUM PHOSPHATE* (TCP)

ABSTRAK

Pendahuluan: *Calcium* merupakan mineral yang diperlukan dalam menghambat demineralisasi. Tingkat *calcium* yang tinggi pada permukaan enamel akan membuat enamel menjadi lebih kuat dan tahan terhadap proses demineralisasi. Peningkatan kadar *calcium* enamel dapat dilakukan dengan pemberian bahan topikal yang mengandung *calcium* dan *phosphate*. **Tujuan:** Untuk menganalisis kadar *calcium* enamel gigi permanen muda setelah aplikasi *Sodium fluoride* 5% + *Tri-Calcium Phosphate (TCP)*. **Metode:** Dua belas gigi premolar pertama rahang atas kanan dan kiri, dibuat *window* (jendela) berbentuk bulat dengan diameter 5 mm pada permukaan labial gigi. Gigi kemudian direndam dalam tabung reaksi berisi 2 ml saliva buatan dan diletakkan dalam inkubator pada suhu 37^0 selama 24 jam untuk mendapatkan suasana yang sesuai dengan rongga mulut, dan dibagi menjadi dua kelompok yaitu kelompok kontrol dan kelompok perlakuan. Pada kelompok kontrol dilakukan pengukuran kelarutan *calcium* dengan *enamel biopsy technique* dengan kertas saring *Whatman* dan dimasukkan ke dalam tabung reaksi berisi 5 ml larutan $SrCl_2$ 0,2%, konsentrasi *calcium* dalam solusi diukur dengan *Atomic Absorbtion Spectrophotometer (AAS)*. Pada kelompok perlakuan, diaplikasikan varnish *sodium fluoride* 5% + TCP pada permukaan *window* kemudian dimasukkan ke dalam tabung kaca berisi 2 ml saliva buatan.dan diinkubasi pada suhu 37^0 selama 24 jam. Pengukuran kelarutan *calcium* dengan *enamel biopsy technique* dan konsentrasi mineral *calcium* dalam solusi diukur dengan AAS. **Hasil:** Rata-Rata kadar *calcium* pada enamel gigi kelompok kontrol adalah 7,574 ppm dan kelompok perlakuan 13,230 ppm, dan terdapat perbedaan yang signifikan. **Kesimpulan:** Aplikasi *sodium fluoride* 5% + *Tri-Calcium Phosphate* (TCP) dapat meningkatkan kadar *calcium* pada pemukaan enamel gigi permanen muda.

Kata kunci: *calcium*, enamel gigi, *tri-calcium phosphate*

CALCIUM LEVEL OF YOUNG PERMANENT TEETH ENAMEL AFTER APPLICATION OF Sodium fluoride 5% + TRI-CALCIUM PHOSPHATE (TCP)

ABSTRACT

Introduction: *Calcium is a mineral that is required to inhibit demineralization. High level of calcium in the enamel surface will make the enamel becomes more resistant to demineralization. Increase levels of calcium enamel can be done by providing topical material that contains calcium and phosphate.* ***Objective:*** *To examine the calcium levels in young permanent teeth enamel after application of sodium fluoride 5% + Tri-Calcium Phosphate (TCP).* ***Methods:*** *Twelve maxillary first premolars right and left were collected, and round window made with a diameter of 5 mm on the surface of the tooth. Tooth then immersed in 2 ml artificial saliva and placed in an incubator at a temperature of 37^0 for 24 hours to get the atmosphere in accordance with the oral cavity, and divided into two groups: control group and treatment group. In the control group the solubility of calcium was measured with enamel biopsy technique with Whatman filter paper and put into a glass tube containing 5 ml $SrCl_2$ 0.2%, calcium concentration of the solution is measured by Atomic Absorption Spectrophotometer (AAS). In the treatment group, applied 5% sodium fluoride varnish + TCP on the surface of the window and then immediately put into glass tubes containing 2 ml artificial saliva and incubated at temperature of 37^0 for 24 hours. The solubility of calcium was measured with enamel biopsy technique with Whatman filter paper and put into a glass tube containing 5 ml $SrCl_2$ 0.2%, calcium concentration of the solution is measured by AAS.* ***Results:*** *Mean levels of calcium in control group was 7.574 ppm and 13.230 ppm in treatment group, there were significant differences.* ***Conclusion:*** *Application sodium fluoride 5% + Tri-Calcium Phosphate (TCP) can increase the levels of calcium in the enamel surface of young permanent dentition.*

Keywords*: calcium, tooth enamel, tri-calcium phosphate*